

Perception of peer review in the omscs program

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Abstract— This study investigates the perception of OMSCS students on the topic of the current peer review process in the OMSCS program. This includes the discussion of the potential steps that could be taken to improve the peer review process. Peer feedback has been demonstrated to support students' learning in traditional classroom models. But the same has not been established for online programs like the OMSCS. To address this gap, views of OMSCS students on the benefits and shortcomings of the current peer review process were examined. Results suggest that while some of the findings are similar to the ones noted in existing literature, some are unique to the OMSCS program. Again, there are several studies which provide recommendations to improve the reliability of peer reviews. This paper also discusses the relevance of these recommendations and their applicability to the OMSCS program. Recommendations such as small peer review groups, taking inputs from students for formulating peer review grading rubric, incentives to those students who provide meaningful and prompt feedback will help in improving the current peer review process in OMSCS.

Keywords— *peer review, validity, accuracy*

I. INTRODUCTION

Peer reviews enable students to learn from each other, grow and co-construct knowledge and understanding [7]. According to a study peer feedback reinforces the students' learning and enables them to achieve higher understanding [1]. Another study stated that peer evaluation enhances student motivation, satisfaction, and achievement [3]. However there are studies which highlight the shortcomings of the peer review process as well. One such study noted that peer reviews have questionable validity, accuracy and reliability and instructors consider much of it too uncritical, superficial, vague, and content-focused among other things [5]. The study points out that students are cognitively ill equipped to answer judgement based feedback questions. Again the ability to give meaningful feedback, which helps others think about the work they have produced, is not a naturally acquired skill [6]. Topping noted that students might experience initial anxiety about the process but suggests that this may be mitigated by asking students to provide positive feedback before providing negative feedback. In addition, students have a tendency to either inflate or deflate scores [8]. He also suggests that learners may perceive the peer feedback they receive to be invalid, leading them to refuse to accept negative feedback as accurate [8]. This study intends to find out whether perception of OMSCS students matches or contradicts the findings in the existing literature.

One of the goals of this study is also to explore and address the concerns of OMSCS students regarding peer grading. If OMSCS students are favorable to the idea of peer grading, it could mean a possible solution to the OMSCS scaling problem. In terms of implementation, a study by Falchikov and Goldfinch suggests several recommendations for implementing peer grading. Some of the recommendations are: peer groups should be small, students should grade on one or two global criteria instead of multiple dimensions and students should be involved in determining the evaluation criteria [2]. This study also aims to find out which recommendations among the proposed ones are acceptable by the students of the OMSCS program. The last proposed recommendation is an important one and has found place in other studies [3]. Involving the students in determining the grading rubric will result in a better understanding of the assignment expectations and as a result better peer grading. But again certain studies have questioned the validity of the grades assigned by peers. A study for example noted that there are significant differences in absolute scores assigned by students and supervisors with students consistently rating their peers higher [4]. In summary, these studies do acknowledge that peer review enhances the learning experience of students, but at the same time are also concerned about its accuracy and validity.

II. METHODS

The study was conducted in two phases, each consisting of a survey. The goal of the first survey was to ascertain what OMSCS students think of the current peer review process. Whereas the goal of the second survey was to find out how the current peer review process can be improved. Both the surveys were qualitative in nature and the response data type was ordinal. All of the questions had a free form text answer option to avoid any presupposition.

A. Survey Sample

The survey pool consisted mainly of cs6460 Educational Technology students. Table 1 shows the number of respondents for each survey. The results suggest statistical characteristics about the population rather than as providing population estimates with specifiable confidence limits. Almost two-thirds of the survey sample shown in Table 1 completed one or two classes which had a peer review component. This sample is very similar to the population estimate of the OMSCS program. OMSCS has a total of 2841 student enrolments till fall 2015 [9] and about two-thirds of the total students have enrolled between spring 2015 and fall 2015. So

taking the OMSCS average of 1.2 classes per semester per student, an OMSCS student on an average has completed 2-3 classes wherein some or all of these classes might have had a peer review component. Thus the sampling error should be within 5%.

TABLE I. NUMBER OF RESPONDENTS FOR EACH SURVEY

Survey	Respondents
1	90
2	68

B. Analysis Metrics

One of the goals of this study is to explore recommendations for improving the reliability of the current peer review process in the OMSCS. The improvement in reliability is measured in terms of two key metrics – validity and accuracy [5]. Validity is the degree of similarity between the peer review and the instructor’s review and accuracy is the degree of similarity among reviews received from different peers. The survey questions were designed to assess the current peer review process of OMSCS in terms of these two metrics and also whether the metrics will improve if the recommendations are implemented.

III. FINDINGS

Two key questions in surveys 1 and 2 were respectively if OMSCS students felt that there is a need for improvement in the current peer review process and if peer reviews can be incorporated into formal grading. For the first question 71.1% of the respondents said that there is a scope for improvement. For the second question opinions were divided and there is no clear consensus. The OMSCS students who were favorable towards the idea had suggestions for incorporating peer reviews into formal grading. The most common suggestions will be discussed later in the student suggestions section in the paper. Fig. 1. and Fig. 2. show the distribution of responses for both the questions.

A. Current peer review process

OMSCS students were also asked how often they received reviews similar to the instructor’s feedback, a measure of validity and how often they received similar reviews from different peers which is a measure of accuracy. 51.1% of the

students responded that they rarely received reviews similar to the instructor’s feedback. This is a dismal number as far as validity is concerned. This may be the result of OMSCS students misinterpreting the peer review rubric and hence providing feedback which is different in nature as compared to the instructor’s feedback. Again 62.2% of the students who took the surveys responded that very often they received similar reviews from different peers. This number looks promising and makes us believe that the accuracy is high for peer reviews. But most of these similar peer reviews are in reality very generic and vague. We can infer this from the fact that 62.2 % students responded that very often they received generic and vague reviews. So the accuracy is high if vague reviews are taken into consideration and it will be much lower if we consider only meaningful reviews. This confirms Palloff and Pratt’s findings wherein they noted the ability to give meaningful feedback is not a naturally acquired skill [6]. Overall these results are in agreement with Nilson’s findings [5]. Fig. 3. and Fig. 4. show the distribution of responses for these two questions. 66.7% students also responded that if they receive negative or critical feedback, they accept it and work on areas of improvement. It implies that students are in general open to receiving critical but constructive feedback. This contradicts Topping’s findings because he noted that learners may perceive the peer feedback they receive to be invalid, leading them to refuse to accept negative feedback as accurate [8].

B. Peer review improvements

The surveys also had questions specific to the class participation policies of cs6460 Educational Technology of OMSCS [10]. The class participation policies of cs6460 are unique and go above and beyond the fixed participation points for giving peer reviews. One such policy is about providing incentives like extra participation points for providing peer reviews within a stipulated time frame. 49.3% of students who took the surveys agreed that incentives will motivate them to provide better peer reviews. Another cs6460 policy is about deducting participation points for providing generic and vague peer reviews. And 47.8% of students responded that a participation point penalty will help in curtailing vague reviews. These numbers prove that the same policies when implemented in other classes will help in increasing the percentage of meaningful reviews. Next the OMSCS students were asked if they would be able to provide more meaningful

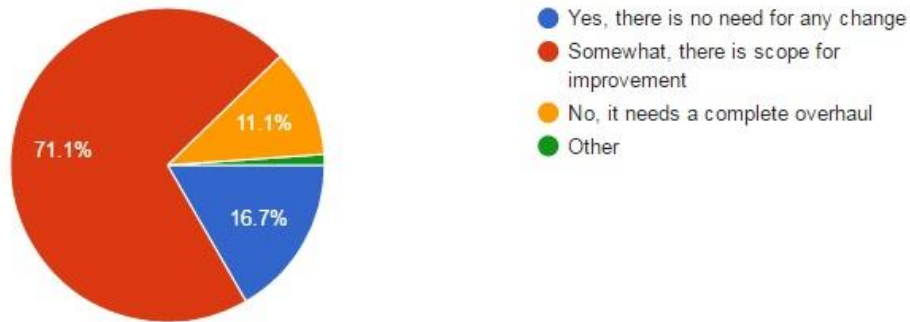


Fig.1. Response to the question – “Are you satisfied with the way peer reviews are implemented in omcs?”

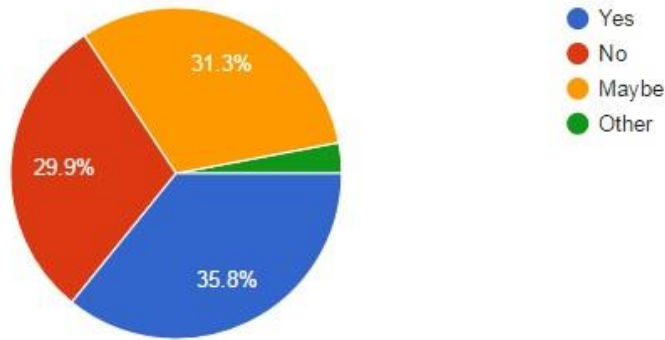


Fig.2. Response to the question – “Is it possible to incorporate peer reviews into formal grading?”

peer reviews if they were involved in assignment peer review rubric formation and 56.7% responded positively. This is in agreement with Falchikov and Goldfinch’s findings [2] and will result in better understanding of the assignment expectations leading to a consistent feedback and better accuracy. But opinions were divided when students were asked if a small number of assignment review criteria (probably one or two global dimensions) will help in providing better peer reviews. 65.7% of students also felt that the instructor’s review is a valid benchmark for peer reviews. This finding implies that OMSCS students judge the quality of a peer review based on its similarity with the instructor’s feedback and any deviation is not taken in a positive way. This also contradicts Falchikov and Goldfinch because they recommended that the validity of peer reviews should not be measured by comparing them with the instructor’s feedback [2]. Again 66.7% OMSCS students did agree that the peer review groups should be small, probably between three and four members. Formulating a meaningful peer review requires considerable amount of time and effort and hence a small peer group is desirable. Although Falchikov and Godfinch recommended this to ensure consistency among peer reviews and a better accuracy number, OMSCS student opinions were divided when asked if small peer groups lead to consistent peer reviews. 52.2% OMSCS students also wanted different peer groups throughout the semester in order to gain a fresh perspective on their work.

C.Student suggestions

OMSCS students who took the surveys provided some good suggestions to incorporate peer reviews into grading. The

general consensus was to take the average of the grades assigned by peers after removing the outliers. The average can then be weighted and added to the final grades. The weights may vary depending on the assignment or project with peer reviews given less weightage for more complex projects. OMSCS students also felt that there should be a way to rate the peer reviews. This new feature can be implemented in the current peer review platform and will especially motivate those students who provide meaningful reviews.

IV. CONCLUSION

We can conclude that most of the findings about the current peer review process of OMSCS are in agreement with the existing literature with a few exceptions. This is the case for the recommendations for peer review improvements as well. Some recommendations which will help improve the current peer review process of OMSCS are formation of small peer groups (three or four members) and involving students in the peer review rubric formation for assignments and projects. In addition class policies should be formed such that OMSCS students are given incentives for providing prompt and meaningful feedback and penalties for providing vague feedback. The difference between classroom programs and OMSCS lies in the way these recommendations are implemented. Steps which work well in a classroom setting may not prove fruitful in OMSCS. This presents us with an opportunity of widening the scope of this research in future.

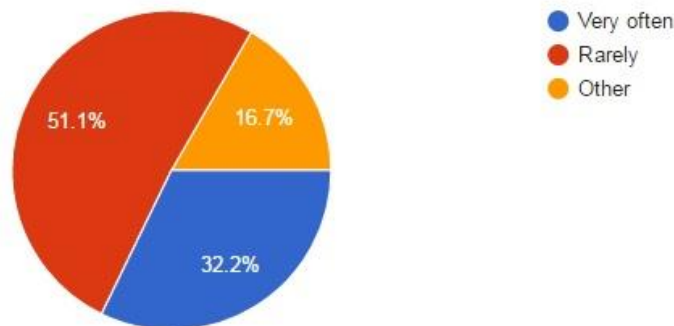


Fig.3. Response to the question – “How often do you receive reviews similar in nature to the teacher’s feedback?”

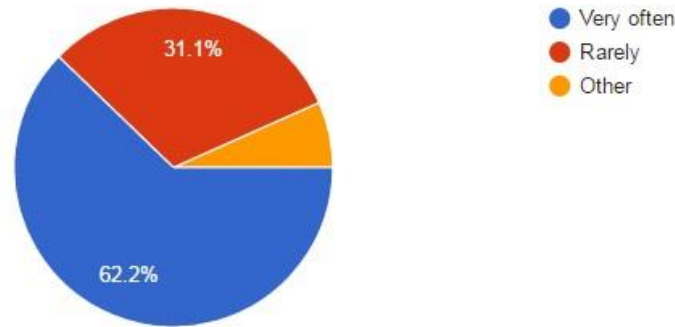


Fig. 4. Response to the question – “How often do you receive similar type of reviews from different peers?”

FUTURE WORK

In future, OMSCS students can build on this research by exploring possible ways to implement the recommendations. They can try to find out the type of incentives that can motivate students to give better peer reviews, ways to involve students in peer review rubric formation through piazza discussions, hangouts etcetera, and ways to engage the reviewer and the reviewee in a meaningful exchange of ideas and so on.

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